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CHAPTER 8

Sources of Farm Capital

THE large growth of capital described in earlier chapters raises questions about the cost or value of the accretions to the stock of farm capital as well as of the replacements made necessary by depreciation, and about the sources of the funds which were used in their acquisition. The purposes of this chapter are (1) to consider the nature of capital formation in farming, (2) to indicate the cost or value of physical capital that was provided in successive five-year periods from 1900 to 1950 to offset depreciation and to augment farm resources and facilities, (3) to examine for this half-century the sources of funds (or their equivalent) that were invested in these replacements and accretions of physical assets or were kept as cash balances for use in farm operation, and (4) to relate the major changes in source of funds to conditions and developments of the times in which they occurred.

Capital Formation in Agriculture

Capital used in farming is frequently produced through direct efforts of farmers themselves. For example, the inventory of farm land is increased when a slough is drained, or land is cleared of stumps or stones by the farmer's personal efforts. A similar increase occurs when a quarter section or more is homesteaded and thereby is transferred from public domain to farm land. Farm capital is increased whenever a crib or fence is built with homegrown materials and with a farmer's own labor, or calves are raised to augment the breeding herd, or farm inventories are increased through retention of a larger proportion of the field crops. These illustrations show how varied are the additions to real farm capital which may be produced at home. Such additions require no direct financing. They are acquired through special effort of the farm operator, as when land is homesteaded or rough land already in farms is improved, or through abstinence and effort, as when calves that could be turned into immediate cash are held to augment the breeding herd.

The fact that physical capital produced at home requires no special financing does not mean that it is costless. Opportunity costs (that is, what might have been earned in another occupation) are substantial, for example, in homesteading. So is the sacrifice of realized income involved in augmenting a dairy herd by holding rather than selling heifer calves. Building up farm capital by producing capital

goods on the farm may even lead indirectly to reduction of accumulated liquid assets or to increase in debt. This will happen if the amount of effort and farm product that is devoted directly to increasing capital is so great that realized net income falls short of family expenditures and the latter are met by drawing down liquid assets or by borrowing. This was no infrequent occurrence on our agricultural frontiers. Ordinarily, however, such additions to capital are gradual enough so that they do not make appreciable inroads on accumulated assets nor do they increase debt. It is with capital that is obtained from others that financial transactions are usually associated.

The larger part of physical capital acquired by farmers is, of course, purchased. Land owned by government or by a company engaged in cutting timber may be added to farm capital in this way. Machinery is ordinarily bought rather than made at home, and buildings constructed on farms usually require much material and labor from other economic sectors. Work animals, feeder cattle, and other types of livestock are frequently bought by farmers from other farmers or dealers for further use on farms. Indeed, all types of real capital pass on occasion from one farmer to another. Such purchases, whether they represent replacements or accretions to capital of the farm sector, or transfers of physical assets from one farmer to another, require financing. The new physical capital, and the intrasector transfers of existing capital, may either be internally financed—that is, they may be paid for out of accumulated savings and current income of the buyer, or the necessary funds may be borrowed from nonfarm, or at least other-farm sources.[1] Similarly, increases in cash balances required for farm operation may represent accumulations by farmers or they may result from borrowing.

[1] The distinction between internal and external sources of capital is not as clear-cut in farming as in most other types of business, because usually the farm operation is not clearly differentiated from the activities of the home. The result is that some of the physical assets, notably the farm residence and automobile, are jointly used for business and for living, and some of the financial assets are acquired for ends that in part serve business and in part serve family needs.

In a strict interpretation of internal and external sources, such as is customarily applied to businesses organized in the corporate form, any withdrawals from miscellaneous reserves reported in Tables 35 and 36 below for the purpose of providing farm capital would be considered as funds obtained from external sources. But in view of the close identification of the farm business with farm living it seems more realistic to regard the miscellaneous reserves of farmers as an internal source, even though for other purposes a distinction between these reserves and financial assets that are strictly necessary for farm operation has clear advantages.

Cost or Value of Real Farm Capital Acquired

Before describing the methods by which we estimated the amount of real capital formation in agriculture, it is necessary to consider whether it is better for our present purpose to focus attention chiefly on *net* capital formation—i.e. on the increases in resources, equipment, and inventories with which farmers work—or whether some *gross* concept that would include some, or all, replacements would provide a better measure of the amount of capital acquired by farmers during any period, and a better basis for understanding the forces that account for changes from time to time in the rate of capital formation. Our data make it possible to show net capital formation for each major type and gross at least for buildings and machinery.

At first thought net capital formation appears to be the logical choice, for the increase in capital seems to be what is crucial and what is subject to manipulation as conditions and abilities change. Replacements, to this way of thinking, can be taken for granted, being automatically provided through depreciation reserves by prudent financial management which considers wear and tear and obsolescence as inescapable costs of production. Moreover, net capital formation can be logically related to net income, the source from which, theoretically, new capital provided by current savings must be drawn.

But there are also disadvantages in the use of the net concept. If we are concerned only with net capital formation, we will ignore a very large flow of goods that for shorter or longer periods becomes a part of farm capital. Feed crops are harvested, stored, and consumed in farm production all within a year's time. Such crops and much livestock regularly take their place as farm capital, and, because of their nature and the nature of farm production, they are regularly replaced by similar new items. That such replacements of short-lived capital are important goes without saying, yet for our present purposes they can perhaps be safely ignored. Frequent and regular replacement of such items cannot be ignored or postponed by the farmer if production is not to be interrupted and hence is almost automatically provided for as a cost of production.

However, there are other important items of farm capital which are used up in production very slowly. Although the remaining life and usefulness of buildings and machinery are reduced regularly by use, it is possible to postpone both provision for, and actual replacement of such items, sometimes for years, without affecting production proportionately. Periodic investment in these more durable capital goods is probably better measured if replacements are in-

cluded with increases when such occur. It is significant that, except for income tax purposes, farmers are likely not to regard depreciation as a regularly recurring expense of production but to consider outlays to replace worn-out machinery and buildings to be in the same class as those made for additions; and they are likely to finance replacements and additions in identical ways.

Probably the best way to obtain a meaningful and significant total of capital formation—one that will make sense in terms of outlays by farmers for capital purposes—is to combine *net* increases (or decreases) of crop and livestock inventories and of cash working balances with *gross* additions to land and buildings and to machinery. To do this for this study, use was made of estimates in current prices of (1) depreciation of buildings and machinery and (2) the increase (or decrease) in the volume of all types of capital (i.e. net capital formation).

The Bureau of Agricultural Economics has estimated annual depreciation of farm buildings and of farm machinery, including motor vehicles, beginning with 1910. As 1910 was a relatively normal year, and the decade that preceded it was free of unusual disturbances to farming, an estimate of annual depreciation from 1900 to 1910 was made by assuming that the relationship between depreciation and census value in 1900 was similar to that in 1910 and that the increase in annual depreciation between 1900 and 1910 occurred regularly throughout the decade. These estimates are shown in Table 36.

Except for machinery, for which accretions after 1910 could be calculated by subtracting BAE's estimates of depreciation from expenditures for machinery, it was necessary to estimate net capital formation first in constant prices by computing the increase (or decrease) in the stock of capital of each class measured in 1910-14 prices. Net capital formation in current prices was then estimated by multiplying by the average of the implicit price indexes (current-price values divided by 1910-14 price values) at the beginning and end of each period. The results (in current prices) of such calculations for the intercensal periods of the entire eighty-year span are found in Table 34.

With the help of the foregoing calculations it is possible to indicate in some detail how much capital was invested in agriculture's physical plant and operating cash balances in each five-year period since 1900 and to indicate by broad categories the sources from which this capital and the funds necessary to effect intrasector transactions were supplied (Table 35). Table 35 is derived from Table 36, which

TABLE 34

Net and Gross Capital Formation in Agriculture in Current Prices, United States, Intercensal Periods, 1870-1950

(*billions of dollars*)

INTERCENSAL PERIOD	ACCRETIONS TO PHYSICAL CAPITAL[a]					CASH WORKING BALANCES	DEPRECIATION		GROSS CAPITAL FORMATION
	Real Estate	*Machinery*[b]	*Live-stock*	*Stored Crops*	*Net Capital Formation*		*Buildings*	*Machinery*	
1870-79	3.3	0.1	0.6	0.4	4.4	n.a.	n.a.	n.a.	n.a.
1880-89	2.0	0.2	0.6	0.3	3.1	n.a.	n.a.	n.a.	n.a.
1890-99	2.9	0.3	0.2	0.1	3.5	n.a.	n.a.	n.a.	n.a.
1900-04	1.4	0.2	0.2	0.1	1.9	0.2	1.0	1.2	4.3
1905-09	1.6	0.2	0	0	1.8	0.2	1.4	1.6	5.0
1910-14	2.1	0.3	0.5	0.3	3.2	0.1	1.7	2.0	7.0
1915-19	1.7	0.6	0.2	0.1	2.6	1.4	2.6	2.7	9.3
1920-24	−1.3	−0.5	−0.7	−0.3	−2.8	−0.3	3.4	3.6	3.9
1925-29	1.4	0.3	−0.4	−0.1	1.2	−0.2	3.0	3.2	7.2[c]
1930-34	−0.1	−0.9	−0.2	−1.1	−2.3	−0.1	2.3	2.5	2.4
1935-39	−0.1	0.7	0	1.1	1.7	0.7	2.2	2.7	7.3
1940-44	1.0	0.7	0.3	0.6	2.6	2.9	3.0	4.3	12.8
1944-49	2.6	2.8	−1.9	0.4	3.9	2.4	5.3	8.0	19.6

[a] Increase (or decrease) in each class measured in 1910-14 prices, multiplied by the average of the implicit price indexes (current-price values divided by 1910-14 price values) at the beginning and end of each period.

[b] Current-price values for periods beginning with 1910 are the differences between expenditures for farm machinery (including motor vehicles) and depreciation as estimated by BAE.

[c] Differs slightly from Table 35 because of rounding.

n.a. = not available.

Source: Accretions to physical capital are based on Tables 7 and 9, except that machinery accretions in current prices for periods beginning 1910 calculated from depreciation and expenditure data in *The Farm Income Situation*, BAE, July-September 1951, Table 14, p. 28. Cash working balances and gross capital formation from Table 35. Depreciation from Table 36.

TABLE 35

Uses and Sources of New Capital in Farming, United States, by Five-Year Periods, 1900-1949

(*billions of dollars*)

Item	*1900-1904*	*1905-1909*	*1910-1914*	*1915-1919*	*1920-1924*	*1925-1929*	*1930-1934*	*1935-1939*	*1940-1944*	*1945-1949*	
Use											
To maintain, increase or improve:											
Land and buildings	2.4	3.0	3.8	4.3	2.1	4.4	2.2	2.1	4.0	7.9	(1)
Machinery and motor vehicles	1.4	1.8	2.3	3.3	3.1	3.5	1.6	3.5	5.0	10.8	(2)
To increase inventories:											
Livestock	0.2	0	0.5	0.2	−0.7	−0.4	−0.2	0	0.3	−1.9	(3)
Stored crops	0.1	0	0.3	0.1	−0.3	−0.1	−1.1	1.1	0.6	0.4	(4)
To increase cash working balances	0.2	0.2	0.1	1.4	−0.3	−0.2	−0.1	.7	2.9	2.4	(5)
Total	4.3	5.0	7.0	9.3	3.9	7.3	2.4	7.3	12.8	19.6	(6)
Sources											
Loans and book credit	1.2	1.5	2.6	7.1	0.8	0.6	0	0.6	0	3.0	(7)
Financial reserves	0	0	0	0	1.5	0	0.5	0	0	0	(8)
Gross income	3.1	3.5	4.4	2.2	1.6	6.7	1.9	6.7	12.8	16.6	(9)
Total	4.3	5.0	7.0	9.3	3.9	7.3	2.4	7.3	12.8	19.6	(10)

Line	Source
1-2	From lines 1 and 2, Table 36.
3-5	Positive values from lines 3, 4, and 5 and negative values from lines 13, 14 and 15. Table 36.
7	Sum of lines 17, 18, and 19, minus the sum of lines 7, 8, and 9, Table 36.
8	From line 16, Table 36.
9	Difference between line 6 and the sum of lines 7 plus 8, Table 35.

TABLE 36

Uses and Sources of New Capital in Farming and in Farmer-Owned Financial Reserves, United States, by Five-Year Periods, 1900-1949

(*billions of dollars*)

Item	*1900-1904*	*1905-1909*	*1910-1914*	*1915-1919*	*1920-1924*	*1925-1929*	*1930-1934*	*1935-1939*	*1940-1944*	*1945-1949*	
Use											
To maintain, increase, or improve:											
Land and buildings	2.4	3.0	3.8	4.3	2.1	4.4	2.2	2.1	4.0	7.9	(1)
Machinery and motor vehicles	1.4	1.8	2.3	3.3	3.1	3.5	1.6	3.4	5.0	10.8	(2)
To increase inventories:											
Livestock	0.2	0	0.5	0.2	0	0	0	0	0.3	0	(3)
Stored crops	0.1	0	0.3	0.1	0	0	0	1.1	0.6	0.4	(4)
To increase cash working balances	0.2	0.2	0.1	1.4	0	0	0	0.7	2.9	2.4	(5)
To increase financial reserves	0.2	0.3	0.3	3.5	0	0.3	0	1.2	7.9	3.3	(6)
To reduce debt (net):											
Mortgage	0	0	0	0	0	0	0.2	0	1.7	0	(7)
Non-real-estate											
Banks and federal agencies	0	0	0	0	0.7	0.2	1.6	0	0	0	(8)
Other	0	0	0	0	0.8	0.2	0.8	0.1	0.4	0	(9)
Total uses	4.5	5.3	7.3	12.8	6.7	8.6	6.4	8.6	22.8	24.8	(10)

(continued on next page)

TABLE 36 (continued)

Item	*1900-1904*	*1905-1909*	*1910-1914*	*1915-1919*	*1920-1924*	*1925-1929*	*1930-1934*	*1935-1939*	*1940-1944*	*1945-1949*	
Source											
Depreciation allocated from gross income											
Buildings	1.0	1.4	1.7	2.6	3.4	3.0	2.3	2.2	3.0	5.3	(11)
Machinery	1.2	1.6	2.0	2.7	3.6	3.2	2.5	2.7	4.3	8.0	(12)
Inventory liquidation											
Livestock	0	0	0	0	0.7	0.4	0.2	0	0	1.9	(13)
Stored crops	0	0	0	0	0.3	0.1	1.1	0	0	0	(14)
Financial asset reduction											
Cash balances	0	0	0	0	0.3	0.2	0.1	0	0	0	(15)
Financial reserves	0	0	0	0	1.5	0	0.5	0	0	0	(16)
Loans and book credit											
Mortgage	0.4	0.5	1.8	3.5	2.3	1.0	0	0.1	0	0.5	(17)
Non-real-estate:											
Banks and federal agencies	0.4	0.5	0.4	1.8	0	0	0	0.6	0.1	1.2	(18)
Other	0.4	0.5	0.4	1.8	0	0	0	0	0	1.3	(19)
Net income	1.1	0.8	1.0	0.4	−5.4	0.7	−0.3	3.0	15.4	6.6	(20)
Total sources	4.5	5.3	7.3	12.8	6.7	8.6	6.4	8.6	22.8	24.8	(21)

Line	Source
1	Value of accretions, Table 34, column 1, plus line 11, Table 36. Value of accretion for 1910-19 divided between the periods 1910-14 and 1915-19 on a 56-44 basis, suggested by the value of accretions to buildings alone as indicated by BAE's estimates of annual expenditure and depreciation of buildings published in *The Farm Income Situation,* BAE, August-September 1952. The value of accretions for 1900-09 divided into five-year amounts in the same proportions that gross farm income is divided, namely, 45-55. These approximate closely the proportions suggested by rough estimates of depreciation of buildings alone.
2	For 1910-49, BAE estimates of expenditure for machinery including motor vehicles. For 1900-09, Table 34, column 2, plus depreciation calculated as indicated for line 12. (However, only 80 per cent of the $410 million for 1900-09 from Table 34 was used in this calculation, as BAE's estimate of accretion for the following decade is only 80 per cent of the amount obtained by the method generally used to obtain values in Table 34.) Division between two halves of decade based on division of depreciation.

(continued on next page)

Source of data in Table 36 (continued)

3 Table 34, column 3. Division of the amounts for decades 1900-09 and 1910-19 based on the increases in the respective five-year periods of livestock numbers weighted by value per head at mid-point of each decade. Negative quantities in Table 34 are entered in line 3 as zero, and they appear as positive quantities in line 13.

4 Table 34, column 4. Division between first and second halves of decades 1900-09 and 1910-19 on same basis that livestock was divided. The assumption justifying this division was that the amount of stored crops could be expected to vary with livestock, since feed crops dominate this category. Negative quantities in Table 34 are entered in line 4 as zero, and they appear as positive quantities in line 14.

5 Net changes in amounts shown in Table 11, column 2. Negative amounts are entered as zero in line 5, and appear as positive amounts in line 15.

6 Changes in amounts shown in Table 11, column 6. Negative amounts are entered as zero in line 6, and appear as positive amounts in line 16.

7 See line 17.

8 See line 18.

9 See line 19.

10 Sum of lines 1-9 inclusive.

11 1910-49, BAE estimates published in *The Farm Income Situation*, August-September 1952. 1900-09 estimates based on following assumptions: (1) That depreciation in 1900 would be the same proportion of the census value of buildings as the BAE estimated depreciation for 1910 was of the 1910 census value and (2) that the increase in annual depreciation was uniform from 1900 to 1910.

12 Same source, similar assumptions and calculations as for line 11.

13 See line 3.

14 See line 4.

15 See line 5.

16 See line 6.

17 Increase in amount of debt outstanding as estimated by BAE for periods beginning with 1910, and as estimated by Goldsmith before 1910. Adjustments were made to take account of the abnormal volume of foreclosures in the four periods covering 1920-39. Method of adjustment is described in footnote 4 of this chapter. Reductions of outstanding debt are entered in line 17 as zero, and the amounts of reduction appear as positive quantities in line 7.

18 Increase in amount of debt outstanding as estimated by BAE for periods beginning with 1910, and as estimated by Goldsmith before 1910. Reductions of outstanding debt are entered in line 18 as zero and the amounts of reduction appear as positive quantities in line 8.

19 Increase in amount outstanding as estimated by Goldsmith for years before 1940 and by BAE 1940-50. Reductions are shown in line 19 as zero, and the amounts of reduction appear as positive quantities in line 9.

20 Balancing item. Difference between line 10 and the sum of lines 11-19 inclusive.

21 Sum of lines 11-20 inclusive.

provides more detail and is slightly broader in scope. Table 36 includes additions to farmer-owned financial reserves as a "use," although strictly speaking these reserves are accumulated largely for purposes not related to farming. These tables begin with 1900, since data on farm indebtedness and financial assets before that year are inadequate. Indeed, some of the items presented in Tables 35 and 36 are, at best, rough estimates which are useful as general indicators of financial uses and sources, rather than as precise measures of them. Even though margins of error in a number of items may be substantial, the tables help to form a fifty-year picture of the sources and uses of new capital on farms which is sufficiently reliable to show unmistakably several significant developments.

During the first two decades of this century new capital supplied to the agricultural sector rose steadily in amount and at an accelerating rate. Indeed, it was provided in such volume that the agricultural plant continued the rapid expansion that characterized earlier decades. This period has already been described as one in which prospects for farmers were bright. Income, whether considered for farmers as a whole or per person engaged, rose steadily, thereby presumably expanding farmers' ability to finance new capital out of income. Nevertheless, the growth in investment that occurred was accompanied by an increasing participation of creditors as financiers of the sector. In the first five-year period, growth of the creditors' interest amounted to 28 per cent of the new investment; by 1915-19 it amounted to 76 per cent.[2]

During the following two decades investment in the farm plant, in current dollars, was more than four-fifths of the amount invested between 1900 and 1920. But there were some striking differences. First, the amounts invested, by five-year periods, show no orderly trend after 1920, but sharply fall and rise once in each decade, re-

[2] This is not to say that more than three-fourths of the new capital of this period was directly supplied by creditors. Much of the borrowing of these years was for the purpose of facilitating transfers of established farms. Voluntary transfers in this period averaged 36.3 per thousand farms compared with 29.2 for 1912-14—the earliest years for which comprehensive farm transfer data are available—and 29.1 for the period 1920-24. What it does mean is that in the complex of circumstances, including price relationships highly favorable to farmers, a real estate boom, and a vigorous expansion of farm capital, there was an expansion of credit sufficient to pay for more than three-fourths of the new capital supplied. It is probable that without this expansion of credit the increase in capital—whatever its source—would have been far less. The vigorous demand for established farms, made possible by credit expansion, resulted in the acceleration of transfers and in rapidly rising prices which powerfully stimulated expansion of land in farms and of improved land, and encouraged construction of farm buildings.

flecting more or less faithfully changes in current income, availability of credit, and shifting prospects of the times. Second, creditors' provided very much smaller proportions of the new capital than formerly; indeed, in the 1930-34 period repayments to creditors exceeded by a large sum the new borrowings. Third, the volume of investment did not even sustain the plant; there was a 3 per cent contraction in its value at constant prices.

It is somewhat surprising to find the dollar investment of the 1920-39 period so nearly equal to that of 1900-19 (Table 36). In two decades which generally have been regarded as difficult ones for farmers, the latter, nevertheless found it possible to invest more than four-fifths as many dollars, provided on balance for the two decades entirely by themselves, as they had in an earlier relatively favorable period of equal length. This achievement is the more remarkable since in the earlier period farmers had considerable assistance from creditors, but in the latter period the farmers reduced their debts.

The explanation of this accomplishment seems to be as follows: First, during the earlier period, particularly during World War I, farmers accumulated very substantial holdings of United States bonds and other assets not used in farming. In the 1915-19 period farmers used more than 13 per cent of their net cash income to augment such financial reserves, increasing them by about $3.5 billion. These holdings were drawn down severely following 1920. Moreover, inventories of livestock and stored crops, which had absorbed substantial amounts of capital during the two decades of physical expansion preceding 1920, now underwent some liquidation. Physical reduction of these inventories therefore made funds available for repayment of debt and for investment in real estate and machinery.[3] When such

[3] If breeding or work stock was reduced by sale to other sectors, the funds that became available for investment through liquidation came immediately from other sectors. But if the reduction in livestock inventory resulted from failure to replace superannuated animals, the funds became available as gross farm income. They represented cost of replacement, but they were not used for that purpose. Crop inventories may likewise absorb or contribute capital as they increase or decrease in physical volume. But for the period 1930-34, when the huge decline resulted not from the use or sale of unusual amounts of crops but from widespread crop failure, reduction of inventory hardly gave rise to funds for investment in other types of capital. It is true that, under the circumstances of crop failure, if the physical inventories had not declined it would have been because farmers sharply restricted the normal uses of inventories, thus cutting down income, or because they maintained their inventories through purchase of feed crops abroad—an operation that would have absorbed funds otherwise available for other investment. But in either case the impact on investment funds available for other purposes would have been indirect. Hence it is probably true that much, though not all, of the indicated contribution of funds in the 1930-34 period from reduction of crop inventory is illusory. If

investment occurred, it represented merely a shift from one type of capital to another. The net accretions to capital, where such occurred, had their source in the liquidation of financial reserves or in gross farm income.

A second factor accounting for the relatively large amount of funds provided internally was the amount of cash receipts from farm marketings and government payments, which provided not only the large depreciation charges indicated in Table 36 but, after payment of other expenditures, a volume of net cash income which, in dollars if not necessarily in purchasing power, compared favorably with that of earlier periods.

Creditors supplied some capital in three of the four five-year periods, although the sharp decline in debt during most of the period 1920-39 suggests no help from that quarter. Unfortunately, the decrease in outstanding debt in the 1920's and 1930's does not accurately reflect the net flow of capital funds between farmers and their creditors. It is deceptive because during these years, in addition to ordinary repayments which made demands on farmers' income and savings, debts were substantially reduced through foreclosures, assignments, and scale-downs prior to refinancing.[4] The much higher

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so, a somewhat larger amount of new capital came from net income than is indicated in Table 36.

[4] Available data do not permit a very reliable estimate of how much mortgage debt was extinguished by repayment and how much by foreclosure, etc. Competent observers believe that repayments may have amounted to nearly $2 billion during the eleven-year period 1929 through 1939, and that foreclosures reduced debt by twice as much. (See D. C. Horton, H. C. Larsen, and N. J. Wall, *Farm-Mortgage Credit Facilities in the United States*, Dept. of Agriculture, Misc. Pub. 478, 1942, p. 49.)

If these amounts are accepted as a leading clue, it seems conservative to suppose that mortgage debt reduction during the period 1930-39 through foreclosure and related procedures amounted to around $3 billion. This amount may be divided between the first and second halves of the decade on the basis of the relative rates of foreclosures in the two five-year periods, which were respectively 27.0 and 15.8 per thousand farms. On this basis it appears that in the period 1930-34 nearly $2 billion of farm-mortgage debt was extinguished through foreclosure and similar involuntary transfers, and about $1 billion in mortgages were extinguished in the second half of the 1930's.

The estimate of $3 billion as the amount by which farm-mortgage debt was reduced by foreclosures during the 1930's may be used also as a basis for estimating the amount by which debt was reduced by foreclosures in the 1920's. The rate of foreclosures per thousand farms averaged 13.7 in the 1920's, or 64 per cent of the 21.4 per thousand rate in the 1930's. This would suggest that the amount by which mortgage debt was reduced in the 1920's was 64 per cent of the amount in the 1930's, or $1.9 billion. However, there is considerable reason to believe that the average mortgage that was foreclosed in the 1920's was larger than in the 1930's. One reason is that trouble was likely to develop first among the larger mortgages. A second reason is that by the 1930's many

level of foreclosures and assignments per thousand farms during the 1920's and 1930's indicates the significance of this factor (Table 37).

Despite the favorable comparison in the volume of current dollars invested in the 1920-39 period, the size and condition of the agricultural plant was not maintained at the level of 1920. Costs of agricultural capital were sufficiently higher in the later period so that new investment did not offset depreciation and liquidation. However, in view of the greatly restricted help from creditors it is surprising that the plant was maintained as well as it was. Farmers could not have supported the level of investment so well except for the financial reserves which they had built up in the fat years that preceded the lean ones.

In the first half of the 1940's, when net cash receipts and net cash income reached unprecedently high levels, farmers were able to expand their capital. In addition, they built up large financial reserves and reduced debt, partly as a result of the restriction of expenditures caused by shortages in many types of goods because of wartime control of materials.

In the second half of the decade, when incomes rose to new peaks and goods were in better supply, capital expenditures on farms reached an all-time peak at $21.4 billion, boosting the inventory of every type of capital except livestock. How was this huge amount financed? One answer is that three-fifths of the amount became available as depreciation charges against gross income, while one-seventh was provided out of net income and another seventh by creditors. But it is more realistic to say that six-sevenths of the amount was provided by farmers out of their gross incomes and that one-seventh was furnished by creditors.

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mortgages that were foreclosed had been reduced somewhat during the previous decade.

How much this difference in average size amounted to generally is not known, but the average size of mortgage foreclosed by the federal land banks in the 1920's was nearly 12 per cent larger than the average for the 1930's. Accordingly, the preliminary estimate mentioned above was raised by 12 per cent to allow for a difference in size of mortgage suggested by the federal land bank experience. This gives a final estimate of $2 billion as the amount by which farm-mortgage debt was reduced through foreclosure in the 1920's. If this is divided on the basis of relative rates of foreclosures in the first and second halves of the decade, the amounts are $0.8 and $1.2 billion respectively. These are admittedly rough estimates, but they make possible a considerably more reliable estimate of the amounts that credit and other sources contributed to capital during the periods in question.

TABLE 37

Estimated Number of Farm Transfers by Voluntary Sales and Foreclosures per Thousand of All Farms, United States, 1912-1950

Year	Voluntary Sales	Foreclosures[a]	Year	Voluntary Sales	Foreclosures[a]
1912	29.9	2.5	1935	24.8	20.3
1913	29.6	2.8	1936	31.5	18.1
1914	28.0	3.3	1937	30.5	14.3
			1938	29.7	13.5
1915	28.3	3.5	1939	30.2	12.6
1916	30.9	3.8			
1917	36.7	3.7	1940	34.1	10.5
1918	37.0	3.1	1941	41.7	6.2
1919	48.8	3.2	1942	45.8	4.4
			1943	55.9	3.1
1920	43.4	4.0	1944	51.5	1.9
1921	26.3	6.6			
1922	24.4	11.7	1945	57.4	1.5
1923	26.1	14.6	1946	57.7	1.1
1924	25.5	16.7	1947	49.0	1.0
			1948	40.8	1.2
1925	29.6	17.4	1949	37.1	1.4
1926	28.3	18.2			
1927	26.3	17.6	1950	39.4	1.5
1928	23.5	14.8			
1929	23.7	15.7			
1930	19.0	18.7			
1931	16.2	28.4			
1932	16.8	38.8			
1933	17.8	28.0			
1934	19.4	21.0			

[a] Includes foreclosures, assignments, bankruptcies, and related defaults.
Source: *Agricultural Outlook Chart Book, 1951*, BAE, October 1950.

Savings and Income of Farmers

The overshadowing importance of the farmer's own contributions to capital formation in the farming sector justifies a digression here for the purpose of relating savings—gross and net—to their source, farm income, and of observing this relation over time. Gross savings are defined to include amounts allocated from gross income to cover depreciation of buildings and machinery. They equal the sum of lines 11, 12, and 20 in Table 36. Net savings, that is, gross savings less depreciation of buildings and machinery, represent amounts derived from net income that were used to increase physical capital, to augment cash balances and financial reserves, or to reduce debt. Net savings are represented by line 20 in Table 36.

These gross and net savings are shown as percentages of income in Table 38. Net savings are shown as a percentage of net income from agriculture (including government payments), whereas gross savings are shown as a percentage of income from agriculture (including government payments) net of all production costs *except depreciation of buildings and machinery.*

As a rule, net savings were a small and erratic part of net income. In two of the five-year periods farmers used 10 per cent or more of their net income from farming for capital purposes, including debt repayment. In two other periods net income contributed nothing to capital formation; in fact, it failed in these periods to provide fully even for family living and other uses that did not augment capital.

Much more important than the relation of net savings to net income in explaining capital formation and its relation to the savings of farmers is the relation of gross saving to income from agriculture. This is so partly because depreciation, an allocation from gross income, represents so large a proportion of the amount spent on capital goods, and partly because farmers seldom regard depreciation as a current and continuing cost of production for which provision, beyond ordinary repairs, should be currently and continuously made. To them the replacement of worn equipment makes the same demands on income or resources as the purchase of equipment that represents an addition to stock. There is considerable uniformity in the percentage that gross savings were of farm income net of all expenses of production except depreciation of buildings and machinery. The percentage declined during the first twenty-five years of this century and then rose somewhat higher than before 1925. The data are too rough to arouse interest in the smaller differences between periods. However, the more extensive changes—those that occurred in the periods 1915-19, 1920-24, and 1940-44—probably reflect the presence of important factors that affected the amount of savings. These invite analysis.

The sharp decline in the proportion of income from agriculture that was "saved" by investment in farm assets or in miscellaneous reserves in the highly prosperous period 1915-19 probably was the result of two factors. First, and most important, inflated expenditures for family living probably made heavy inroads on the incomes of many farmers. The rise in prices of that period made necessary much greater outlays to maintain the prewar level of living. But more than that, the prosperity of the times encouraged farmers to spend freely, so that the level of living for many farmers was substantially higher during this period than before. Second, the land boom which devel-

TABLE 38

Net and Gross Savings, Capital Formation, and Income of Farmers, United States, by Five-Year Periods, 1900-1949[a]

(dollars in billions)

PERIOD	NET SAVINGS	NET CAPITAL FORMATION	NET INCOME FROM AGRICULTURE	PERCENTAGE RATIO		
				Net Savings to Net Income	*Net Savings to Net Capital Formation*	*Net Capital Formation to Net Income*
1900-04	$ 1.1	$ 2.1	$ 17.0	6	52	12
1905-09	0.8	2.0	20.7	5	44	10
1910-14	1.0	3.3	25.7	4	33	13
1915-19	0.4	4.0	45.0	1	7	9
1920-24	−5.4	−3.1	36.0	[b]	[c]	[d]
1925-29	0.7	1.1	41.5	2	68	3
1930-34	−0.3	−2.4	21.6	[b]	[c]	[d]
1935-39	3.0	2.4	31.6	10	125	8
1940-44	15.4	5.5	57.6	27	294	9
1945-49	6.6	6.3	90.8	7	108	7

PERIOD	GROSS SAVINGS	GROSS CAPITAL FORMATION	GROSS INCOME FROM AGRICULTURE	PERCENTAGE RATIO		
				Gross Savings to Gross Income	*Gross Savings to Gross Capital Formation*	*Gross Capital Formation to Gross Income*
1900-04	$ 3.3	$ 4.3	$ 19.2	17	78	22
1905-09	3.8	5.0	23.7	16	77	21
1910-14	4.7	7.0	29.3	16	68	23
1915-19	5.7	9.3	50.3	11	61	19
1920-24	1.6	3.9	43.0	4	42	9
1925-29	6.9	7.3	47.6	14	95	15
1930-34	4.5	2.4	26.4	17	185	9
1935-39	7.9	7.3	36.5	22	108	20
1940-44	22.7	12.8	64.9	35	182	19
1945-49	19.9	19.6	104.1	19	102	19

[a] Net and gross amounts differ by the amount of depreciation of buildings and machinery. Percentages computed from unrounded data.

[b] No net saving.

[c] No net saving or capital formation.

[d] No net capital formation.

Source: Net savings, from Table 36, line 20. Net income data for 1900-04 and 1905-09 are from Strauss-Bean estimates adjusted by percentage Strauss-Bean 1910-14 gross income is of BAE 1910-14 net income. Net income for 1910-49 from *The Farm Income Situation*, BAE, August-September 1952, p. 29.

Gross savings, from Table 36, sum of lines 11, 12, and 20. Gross income 1900-04 and 1905-09 is net income plus lines 11 and 12, Table 36; gross income for 1910-49, from *The Farm Income Situation*, August-September 1952, pp. 29 and 42.

Net and gross capital formation from Table 34.

oped in most agricultural regions in this period may have absorbed some of the high farm incomes. This must certainly have happened where farmers bought land from nonfarmers at inflated prices. If, as is sometimes alleged, farmers as a class came out second best to business and professional men, who also speculated in farm land and cattle in many agricultural areas, it may well be that farmers lost to them a part of their income that they might have saved.

The extremely low rate of gross saving in 1920-24 is hard to explain. The sharp contraction in expenditures on farm capital in this period is understandable in view of the reverses that overtook agriculture. And it was only natural that a part of what was spent on buildings and machinery in these years of readjustment should be obtained by reduction of war-inflated inventories and of cash working balances. It is surprising, however, that almost as large a proportion of what was spent on farm assets was drawn from miscellaneous reserves as from income. Although income from agriculture (including government payments) net of all production costs except depreciation of buildings and machinery was 15 per cent less than in the immediately preceding five-year period, it was 46 per cent higher than in the 1910-14 period. A partial explanation of such an exceptionally small proportion of income from farming saved in this period may be that liquidation of government bond holdings was less rapid and complete than Goldsmith assumed in making the estimates that we have used.[5] But at most this would be a minor factor. Possibly farmers' costs of living remained high enough to absorb the bulk of their income.

The exceptionally high percentage of farm income that was saved in the period 1940-44 is more easily explained. To begin with, the volume of income before deduction of depreciation charges was without precedent. At $64.9 billion it was 29 per cent above that of 1915-19, the previous record for a five-year period. But farmers were less inclined to spend their incomes freely than in 1915-19, for at least four reasons. First, the high level of prosperity of 1940-44 followed

[5] The Northeast, for example, largely escaped the excesses of the land boom that raged elsewhere in the years immediately preceding 1920; hence production expenses of farmers in that region were only moderately inflated by the war. Moreover, in the Northeast prices of farm products were relatively favorable during the early 1920's. Thus it seems probable that no great pressure to liquidate bonds developed in that region. Even in regions like the Corn Belt and Great Plains, where land speculation before 1920 was excessive, it is reasonable to suppose that many farmers emerged without commitments that could not be met out of current income. Although speculation and inflation of fixed costs were widespread, these developments were by no means universal in these regions.

on the heels of hard times and discouragement that had plagued farmers in greater or lesser degree for two decades, and had instilled in them a considerable amount of caution. This is in contrast to the steady improvement in the financial position and prospects of farmers that characterized a period of equal length prior to 1915, which served to encourage freer spending of income. Second, during 1940-44 farmers were repeatedly reminded by government and other agencies of the sharp reversals that had overtaken them after World War I and of the desirability of saving as much as possible while incomes were high, so that if large-scale readjustment became necessary for profitable farming in the postwar period, liquid assets would be available for that purpose. Third, widespread drastic restrictions on expenditures greatly curtailed the use of income for consumptive purposes. Similar but somewhat less drastic restrictions applied also to expenditures for capital goods. These restrictions undoubtedly contributed to the savings of the large sums which were invested by farmers in United States savings bonds or which accumulated in other forms in miscellaneous reserves. Finally, although activity in the land market was greater than in the 1915-19 period, prices of farm land in many prominent agricultural states were substantially lower, so that less money was probably required to effect transfers.

It is hardly surprising, therefore, that about 1 out of 3 dollars of income from agriculture before deduction of depreciation charges was "saved," and that nearly half of the savings were used to reduce debt or to increase miscellaneous financial reserves. Indeed, the investments in miscellaneous reserves accounts for most of the higher percentage of savings. Large as the growth of physical capital and working cash balances used in farming was during 1940-44, the savings of farmers apparently were much more than sufficient to finance it.

Savings of Farmers and Capital Formation

Savings of farmers and capital formation in agriculture have ordinarily followed quite similar trends, but only infrequently have they approached equality in amount. From 1900 to 1920 gross capital formation outran gross savings by 29 to 65 per cent (Table 38). In these two prosperous decades creditors assisted substantially in financing new farm capital. Toward the end of this period, when assistance from creditors in financing an expanding agricultural plant was at its height, farmers placed a substantial amount of their savings into financial reserves, notably into holdings of government bonds.

The extraordinarily high percentage by which investment exceeded savings in the first half of the 1920's does not reflect a high rate of capital formation, for during this period of uncertainty and distress investment in new farm assets was at a very low level. But savings of farmers were even lower. Despite the slow rate of capital formation, farmers had to draw heavily upon their financial reserves and to borrow somewhat more than they repaid in order to finance it. However, in the second half of the 1920's a volume of investment 85 percent higher than in the first half was virtually matched by savings. An 11 per cent increase in income contributed to this recovery of both savings and investment.

Since 1930, in bad times as well as in good, savings have outrun capital formation. The very meager amount of capital formation in the early 1930's—much too little to keep the agricultural plant intact—reflects the profound discouragement and uncertainty caused by the agricultural depression. Savings naturally were greatly reduced, but less so than investment, since repayment of debt was a more compelling consideration than the purchase of new capital items. The rise in investment and in savings in the second half of the 1930's coincides with improvement of prospects and of income. Investment now rose faster than savings and absorbed most but not all of them.

In the five-year period that roughly coincides with World War II, savings again far exceeded capital formation, this time because forces peculiar to the war economy, which were explained above, not only greatly increased farm income but also largely influenced its disposition. The relaxation of wartime controls and the consequent greater availability of capital goods go far to explain the slight decline of savings and the 57 per cent rise in capital formation which brought these amounts for the 1945-49 period to virtual equality.

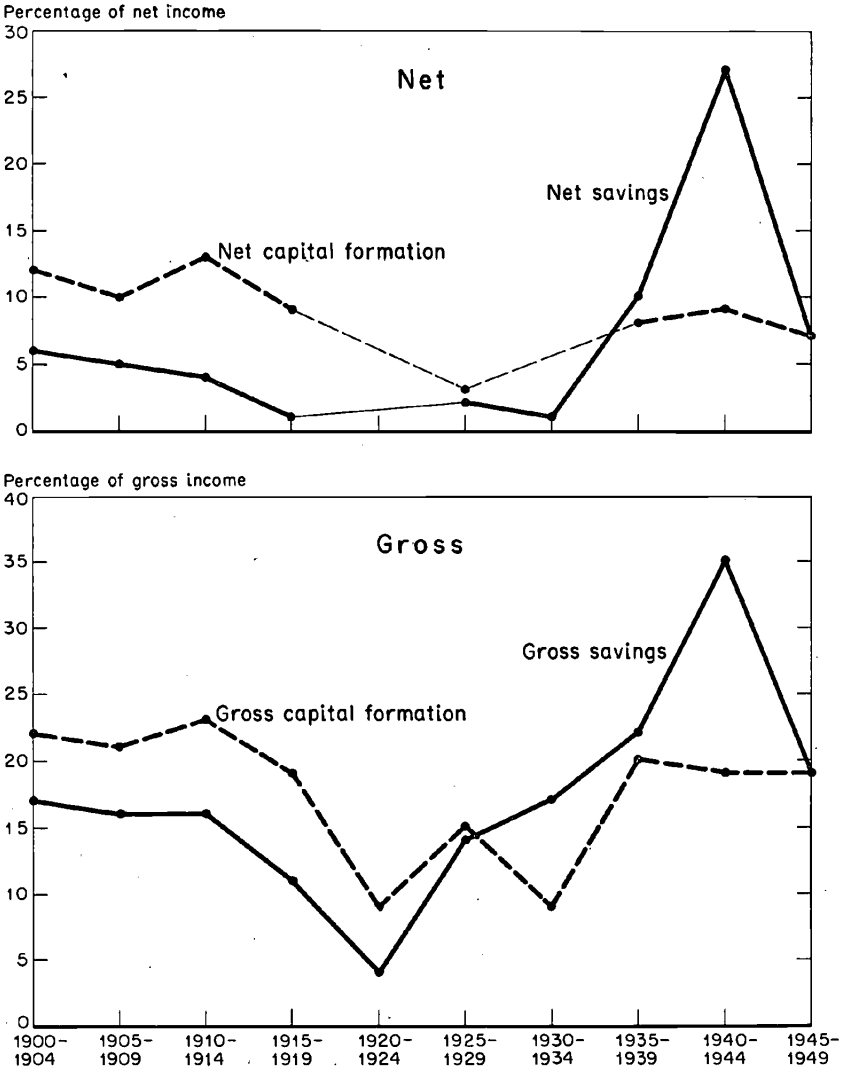
Relation of Capital Formation to Income

Capital formation on farms has already repeatedly been linked to income from farming, mainly through savings, but no direct comparison of these two variables has so far been made.

Capital formation and income have maintained a surprisingly consistent relation to each other (Table 38 and Chart 12). Except for the period 1920-35, in which farming twice suffered severe depression and in which investment declined even more than income or savings, gross capital formation amounted to around one-fifth of income from farming (including government payments) net of production expenses except depreciation of buildings and machinery. The remarkably consistent relationship of gross capital formation to

CHART 12

Savings and Capital Formation in Relation to Income from Agriculture, United States, by Five-Year Periods, 1900-1949



No net capital formation in 1920-24, 1930-34. No net savings in 1920-24.
Source: Table 38.

gross income emphasizes the outstanding importance of the latter both as a source of new capital and as an incentive for investment in new capital. With few exceptions, income as defined above has provided much more of the money invested in successive five-year periods than have the other sources combined. Furthermore, the amount of new capital that can be financed by borrowing is closely related to income. The willingness and, as is explained below, the ability of local lenders to provide capital is substantially affected by the amount and the trend of farm income, through its influence on the amount of local bank deposits and the financial condition of individual lenders.

External Sources of Capital

Although the volume of capital supplied by external sources has at all times been smaller than that derived from internal sources, it does not follow that the former was unimportant in the development of agricultural capital. In this as in many economic developments it is the marginal elements that are likely to be crucial.

Capital goods used in farming are occasionally hired, as when harvesting or threshing machinery owned and operated by nonfarmers is used to help bring in the crop. However, the important amounts supplied by external sources are those obtained through the use of credit. Therefore, an essentially accurate measure of capital supplied by external sources to individual farmers is the volume of farm debt. This is usually classified as farm-mortgage debt and non-real-estate debt. Historically the former has been the more important (Chart 13).

SOURCES OF MORTGAGE CREDIT

The extent to which farmers were dependent on local sources of farm-mortgage credit in the latter part of the nineteenth century is striking. In 1900 as much as 94 per cent of the total outstanding farm-mortgage debt was owed to banks, individuals, and others, of which much the larger part represented loans from local sources.[6]

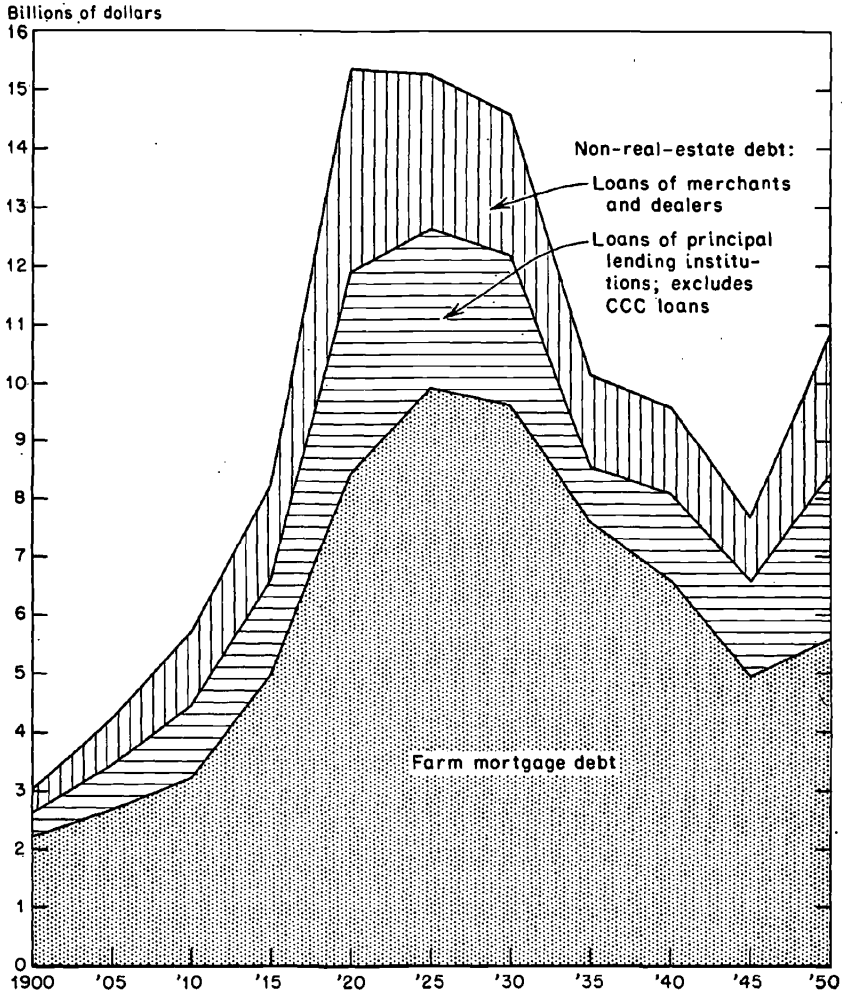
[6] In this section when we explore the sources of mortgage credit it is necessary to refer to volume of mortgages outstanding (or held) as well as to recordings as evidence of the relative importance of sources. Unfortunately, the nature of the basic data requires this use of volume outstanding, but no false conceptions need arise if these amounts are properly used.

The distribution of mortgages outstanding among lenders gives an essentially accurate picture of the relative importance of lenders over long periods. However, for any one year or other relatively short period, the distribution of mortgage recordings is obviously superior, since it requires no assumption of constancy of the relative importance of lenders over time.

In the case of short-term loans we use loans outstanding (or held) as evidence of the relative importance of lenders at the time. The distortion, if

CHART 13

Farm Debt, United States, January 1, 1900-1950



Source: Farm-mortgage debt and non-real-estate loans of principal lending institutions, 1900-09 from Raymond W. Goldsmith, Associates, Inc., Washington, D. C.; 1910-50 from Bureau of Agricultural Economics, Division of Agricultural Finance. Loans of merchants and dealers, 1900-50 from Raymond W. Goldsmith, Associates, Inc., Washington, D. C.

Life insurance companies, which held the remaining 6 per cent, were the main sources of mortgage funds that had originated as savings at distant points.[7]

Dependence on local sources declined very slowly during the first two decades of this century. Much the larger part of the loans that carried farm-mortgage debt from $2,229 million on January 1, 1900 to $10,768 million on January 1, 1923 was probably obtained from local lenders (Charts 14 and 15 and Table 39). In 1920 individuals and banks still accounted for 77 per cent of the total amount of mortgages recorded, and although these cannot be classified as local loans without exception, most of them probably were of this type (Table 39). However, after 1920 the proportion of farm-mortgage funds provided by the main nonlocal lenders was very much higher. In 1923 farm mortgages recorded by insurance companies and federal and joint-stock land banks amounted to 33 per cent—the peak until 1934, when the federal land banks and the Land Bank Commissioner were by far the most important source of mortgage funds for farmers.

The decline in the relative importance of local sources of farm mortgage funds after 1920 was due to the severe shrinkage in loans made by individuals. One important reason for this shrinkage was the decline in voluntary transfers of farm real estate transactions that gave rise to a large part of the mortgages made by individuals. Another important reason was that the ability of individuals in rural areas to make loans was generally reduced by the agricultural depression. Local capitalists—professional and business men in farming communities—who normally were important suppliers of mortgage money, like farmers themselves were adversely affected by the severe decline in farm prices and income.

The data in Table 39 make it appear that banks were a more important source of mortgage money in the 1920's than in the preceding decade. The impression made by the recordings is somewhat deceptive, since a considerable part of the mortgages recorded by banks in the early 1920's represented liens that were placed on farm real estate in order to obtain added security for loans made before

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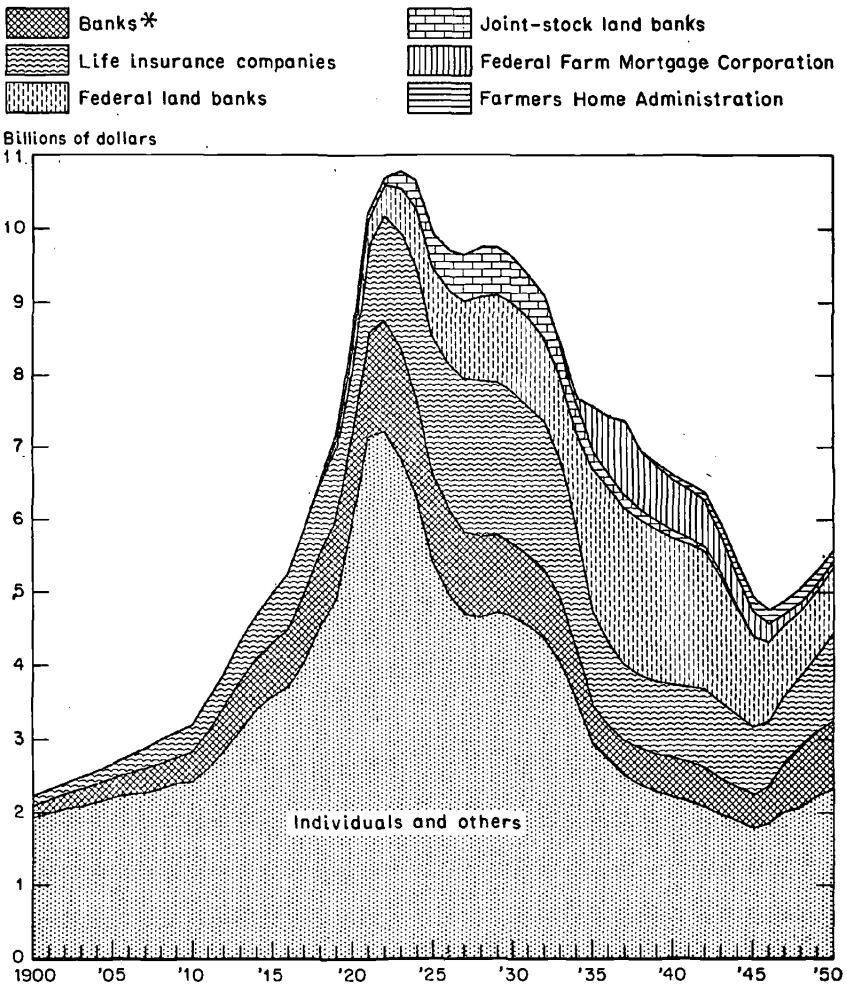
any, that this leads to is not nearly so serious as it would be in long-term loans, since the bulk of short-term loans held at any time were probably made within a year. Even loans that were several times renewed are usually evidence of a willingness and ability to assist in financing farm operation at the time of renewal.

[7] Mortgage companies, which are included with "others," have considerable claim to classification as nonlocal sources of capital. Their importance, however, was hardly sufficient to alter our general conclusions, drawn without any attempt to segregate them.

CHART 14

Amount of Farm Mortgage Debt Held by Major Lenders, United States, 1900-1950

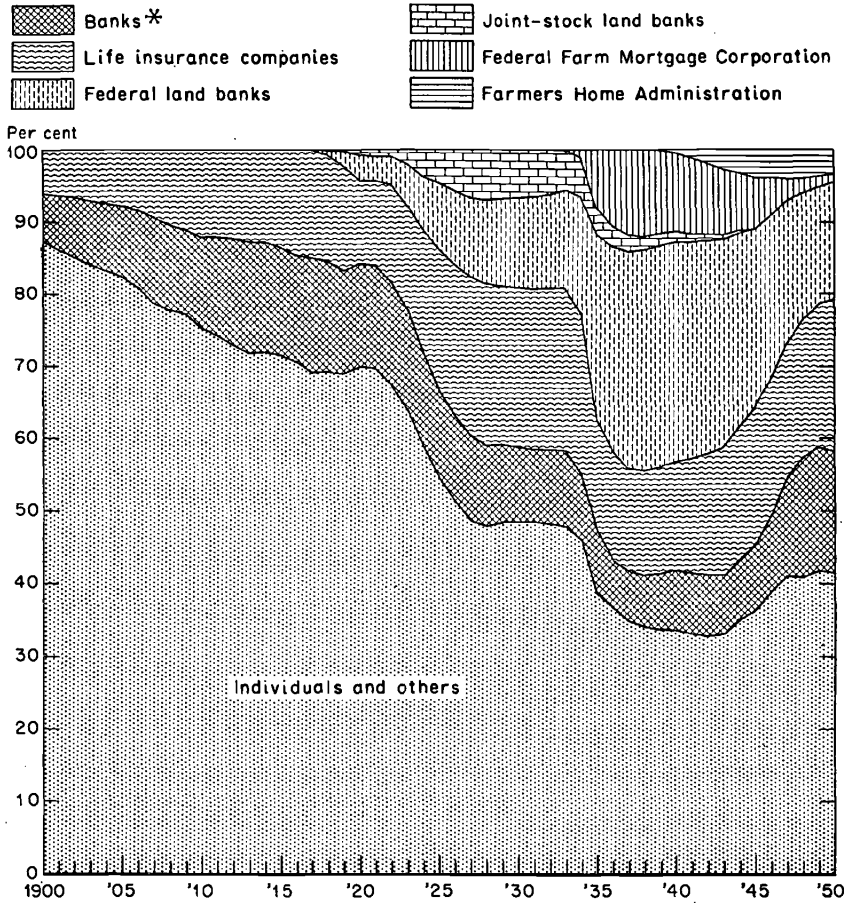


* 1900-34, open state and national banks; 1935-47, insured commercial banks; 1948-50, all operating banks.

Source: 1900-09 from Raymond W. Goldsmith, Associates, Inc., Washington, D. C.; 1910-50 from Bureau of Agricultural Economics, Division of Agricultural Finance.

CHART 15

Percentage of Farm Mortgage Debt Held by Major Lenders, United States, 1900-1950



* 1900-34, open state and national banks; 1935-47, insured commercial banks; 1948-50, all operating banks.

Source: Based on 1900-09 estimates from Raymond W. Goldsmith, Associates, Inc., Washington, D. C. and 1910-50 estimates from Bureau of Agricultural Economics, Division of Agricultural Finance.

the onset of the depression. Mortgages of this type represented no new advances to farmers and they reflected no increase in the relative importance of banks as sources of loans. Many banks in rural areas were in no position to supply a larger share of the farm mortgage money required in the 1920's. The agricultural depression had caused an outflow of deposits to city banks, and the losses which country

TABLE 39

Percentage Distribution of Total Amount of Farm-Mortgage Recordings, by Selected Lender Groups, United States, 1910-1949

Year	Individuals	Banks	Insurance Companies	Federal Land Banks and Federal Farm Mortgage Corporation	Miscellaneous
1910	63.3	16.6	8.4		11.7
1911	61.7	17.6	9.1		11.6
1912	59.6	18.4	10.5		11.5
1913	62.2	18.0	7.9		11.9
1914	60.3	19.3	8.6		11.8
1915	54.8	21.1	12.4		11.7
1916	51.3	24.7	12.8		11.2
1917	54.0	20.2	13.0	1.9	10.9
1918	58.8	16.2	8.3	6.0	10.7
1919	57.5	18.4	7.3	4.9	11.9
1920	59.1	18.3	10.7	1.8	10.1
1921	46.8	25.4	11.3	3.5	13.0
1922	37.7	23.1	13.6	8.9	16.7
1923	34.5	21.9	18.1	7.6	17.9
1924	37.1	23.0	16.7	7.8	15.4
1925	39.9	21.8	16.0	5.7	16.6
1926	39.6	21.3	16.5	6.3	16.3
1927	40.2	22.4	14.1	7.8	15.5
1928	42.9	23.9	13.4	6.1	13.7
1929	44.4	23.5	13.9	4.3	13.9
1930	45.3	26.0	12.7	3.5	12.5
1931	44.9	27.3	10.6	3.5	13.7
1932	45.8	29.2	8.3	3.0	13.7
1933	34.6	20.3	5.6	27.0	12.5
1934	13.7	7.2	2.9	70.5	5.7
1935	26.2	16.6	7.3	41.8	8.1
1936	31.8	23.2	14.4	23.1	7.5
1937	34.7	28.1	16.9	13.5	6.8
1938	32.4	29.0	19.0	11.1	8.5
1939	31.1	29.9	18.9	10.8	9.3
1940	29.2	28.5	18.8	13.0	10.5
1941	29.7	26.5	19.3	12.2	12.3
1942	32.6	25.0	20.3	10.7	11.4
1943	38.3	25.4	18.2	10.0	8.1
1944	39.8	26.3	16.5	10.7	6.7
1945	39.6	29.6	13.8	11.4	5.6
1946	35.5	35.1	13.5	9.6	6.3
1947	33.7	33.8	16.0	10.3	6.2
1948	34.9	30.6	18.2	10.4	5.9
1949	32.8	28.1	19.7	12.8	6.6

Source: Farm Credit Administration.

banks sustained in their loan and investment portfolios reduced their capital.

On the other hand, the increases both in actual dollar amount of mortgage loans held and in percentage of new recordings made by the insurance companies and federal and joint-stock land banks represented genuine increases in the relative importance of these nonlocal sources of farm capital. Since these centralized lenders drew savings from all sectors of the economy as well as from all parts of the country, the agricultural depression of the period did not curtail their ability to lend as it did that of rural banks and individuals. Accordingly, they were able to increase their importance as financiers of farmers.

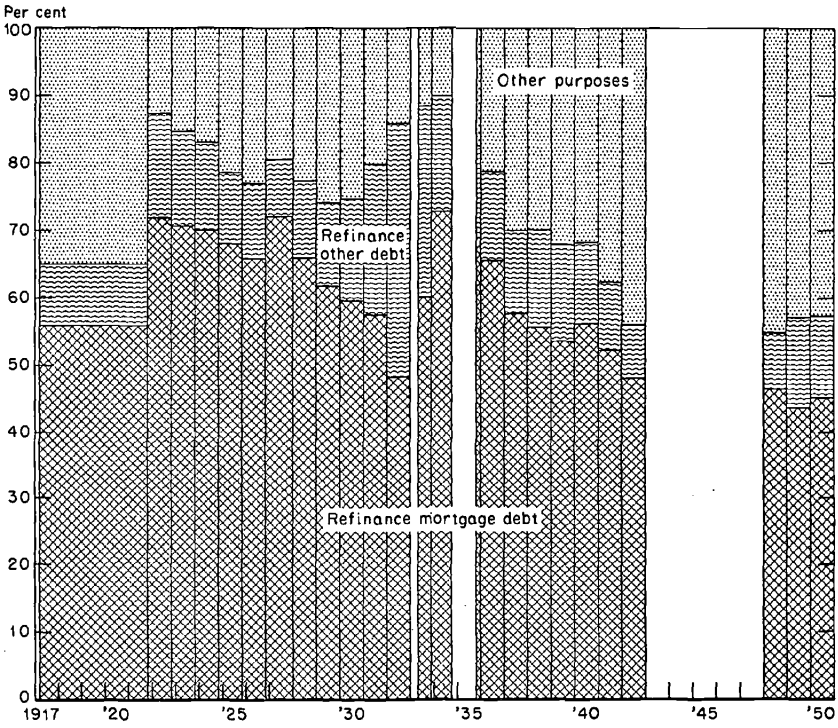
In the early 1930's when depression became general, with devastating effects on the financial condition of individuals and institutions, local sources of mortgage funds virtually dried up. At the same time the insurance companies greatly curtailed their lending. Beginning in 1933 the federal land banks and the Land Bank Commissioner became the most prominent sources of farm mortgage loans. These federal agencies were not supplying new capital so much as they were assisting farmers to refinance their loans. Thus their immediate contribution was to rescue farmers from defaults that would have cost them their farms and often their livestock and equipment, and to soften the impact of the unprecedented depression on the lenders whose loans were being refinanced. As can be seen in Chart 16, the proportions of loans made by the federal banks for refinancing purposes was high before 1930 and continued high in the 1930's. In fact, during the first half of the 1930's such loans by the federal land banks and the Land Bank Commissioner were almost exclusively for these purposes and for the purpose of redeeming land from foreclosure. In the early 1930's farmers and their creditors were preoccupied with the problem of maintaining solvency and saving such capital as they had. The problem of expanding farm capital through the use of credit received small attention in these financially perilous years.

Non-Real-Estate Debt and Capital Formation

Farmers have at all times utilized a considerable volume of credit not secured by farm mortgages. This credit, sometimes designated as "non-real-estate" and, less accurately, as "short-term" or "production" credit, has been used partly to acquire real capital—machinery, livestock, and even occasionally real estate, or to augment working cash balances. It has been used also to meet current expenses of produc-

CHART 16

Use of Proceeds of Federal Land Bank and Land Bank Commissioner Loans, Specified Years, 1917-1934, 1935-1942, 1948-1950



Note: Indicated years 1917-42, for all loans closed; 1948-50, for a sample of last 100 loans closed by each federal land bank prior to December 15 of each year.
Source: Farm Credit Administration.

tion—to pay for seed, fertilizer, hired labor, etc., and to pay for living expenses of the farm household from seed time to harvest. The first-mentioned use of such credit frequently increases capital and is reflected in the value of physical or financial assets, and the second use makes no such contribution. It is therefore necessary to consider what part of the loans outstanding on January 1 of the years in question may have been made to finance the acquisition of capital and what part to pay production or living expenses.

While it is impossible to say precisely what part of the non-real-estate credit used by farmers resulted in larger holdings of farm capital, there is reason to believe that the larger part was used to augment such holdings. Moreover, of the part of this debt that re-

mained outstanding at the end of each year an even larger proportion had been incurred for the purpose of paying for additions to farm capital.

Data in support of these views are not abundant. However, a countrywide survey in mid-1947 of farm production loans at insured commercial banks revealed that 48.2 per cent of the money was borrowed for the purpose of buying machinery or livestock, and another 9.2 per cent was borrowed to buy or improve land or buildings. Thus 57.4 per cent of the amount of these bank loans gave rise to new farm capital, or facilitated the intrasector transfer of existing capital, whereas 34.6 per cent was used to pay production or living costs.[8]

Although the proportion of non-real-estate loans that gave rise to farm capital is notable in this midyear survey, it seems certain that a survey made at the beginning of the year (estimates used in this study are as of January 1), when seasonal or crop loans are likely to be well liquidated, would show a much higher proportion of loans used to pay for physical assets. In a study of loans made by production credit associations, Lawrence A. Jones has shown that, particularly in areas where seasonal or crop loans were likely to be the dominant type, repayments are heavily concentrated in the last five months of the year. This indicates that loans made to finance seed, fertilizer, hired labor, or even living cost were largely out of the picture by January 1.[9] For example, in typical recent years in the cotton-growing Delta area of Arkansas, 90 per cent of the repayments were made in the August-December period; in the cotton-growing Piedmont region of South Carolina and Georgia, 76 per cent; in the flue-cured tobacco area of North Carolina, 98 per cent; in the rice-growing area of Texas and Louisiana, 85 per cent; and in the wheat area of Montana, 77 per cent. Even in Aroostook County, Maine—which is noteworthy because, unlike most other special crop areas, as much as 20 per cent of the repayments were made in January—59 per cent occurred in the last five months of the year.

It is probably correct to assume that "store-credit" advanced

[8] Herman Koenig and Tynan Smith, "Farm Production Loans at Commercial Banks," *Federal Reserve Bulletin*, December 1947. Of the residue, 3.3 per cent was for the purpose of repaying debts and 4.7 per cent was unclassified.

It may be thought that 1947 was an abnormal year, with far greater than normal expenditures for machinery and buildings. However, the relation of expenditures on buildings and machinery to current operating expenses was about the same in 1947 as it had been, on average, in the five years preceding the war (1937-41).

[9] Lawrence A. Jones, "Trends and Characteristics of Loans of Production Credit Associations in Selected Farming Areas," *Agricultural Finance Review*, BAE, November 1952.

during the growing season is also well-liquidated by January 1. Hence, although some residue of loans which gave rise to no assets may have remained at the end of the year and may be reflected in the volume of non-real-estate debt of January 1, it is believed to be small. To the extent that it exists, we have, of course, overstated somewhat the importance of credit as a source of farm capital and understated the importance of farm income.

DATA AVAILABLE ON SOURCES OF NON-REAL-ESTATE CREDIT

The principal sources from which farmers obtained non-real-estate credit were (1) banks, (2) in recent decades, certain credit agencies representing, or sponsored by, the federal government, and (3) merchants and dealers who sold goods to farmers on time.

Basic data which would make possible close estimates of the amount of non-real-estate credit in use by farmers do not exist. Loans held by federal and federally sponsored agencies are precisely known, but they have attained importance mainly since the 1930's. Non-real-estate loans outstanding to banks have been estimated by BAE for January 1 and July 1, beginning with 1910. Estimates for years before 1937 were based on scattered survey dates, and therefore, though carefully made, they are hardly as reliable as those of later years.[10] Estimates of merchant and dealer credit outstanding to farmers are extremely rough. BAE has tentatively estimated such debts beginning with 1940 by assuming that in that year non-real-estate debt owed to dealers and merchants amounted to three-fourths of that owed to institutional lenders. This represents little more than a guess. The relationship was modified frequently during the 1940's to reflect influences that were known to bear on the volume of such credit, but whose effects could not be measured. Goldsmith's estimates for years before 1940 rest on the single assumption that the amount of credit furnished by dealers and merchants equaled that provided by banks and the federally sponsored agencies.[11]

Unfortunately, there is no ready way to refine these estimates. Numerous surveys of short-term credit for dates extending from 1922 to 1949 show in one way or another the proportion furnished by merchants and dealers, but the limitations of the surveys and the wide variation in the reported proportion provided by merchants and

[10] For a description of the method of estimating these loans see Norman J. Wall and Lawrence A. Jones, "Short-Term Loans of Commercial Banks, 1910-45," *Agricultural Finance Review*, BAE, November 1945, pp. 12-14.

[11] This general equivalence assumed both by BAE and Goldsmith was also thought to be probable by others. See Albert Gailord Hart and others, *Debts and Recovery 1929 to 1937*, Twentieth Century Fund, 1930, p. 149.

dealers—from less than 5 to more than 80 per cent—make them of little use in determining an appropriate countrywide proportion.[12] In the absence of information that would reveal more reliably the relative importance of credit advanced by merchants and dealers to farmers, the estimates provided by BAE and Goldsmith are presented as rough approximations which, if we remember their limitations and do not draw too fine distinctions from them, can contribute to our understanding of the sources of farm capital.

SOURCES OF NON-REAL-ESTATE CREDIT

During the first quarter of the twentieth century local banks, merchants, and dealers supplied most of the non-real-estate credit used by farmers. Some money from more distant lenders was made available to farmers when local banks were assisted by city correspondents, or when livestock loan companies, often assisted by city banks, made advances to ranchers and large feeders. However, except in areas producing range livestock, farmers generally were dependent on local sources for their non-real-estate loans even more than they were for loans secured by farm mortgages. Because of the unsatisfactory nature of existing estimates of credit obtained from merchants and dealers, no attempt is made to analyze developments in that quarter.

Commercial banks were virtually the sole institutional source of non-real-estate loans during the first quarter of this century. Not until 1926 did other institutional lenders, that is, the federal or

[12] The following studies with analyses of sources of short-term credit have been examined: (1) Arthur N. Moore and C. O. Brannen, *Facts and Problems of Farm Credit in Craighead County, Arkansas*, Arkansas Agricultural Experiment Station Bull. 233, 1929, p. 8. (2) David L. Wickens and Garnet W. Forster, *Farm Credit in North Carolina—Its Cost, Risk and Management*, North Carolina Agricultural Experiment Station Bull. 270, April 1930. (3) David L. Wickens and Ward C. Jensen, *Agricultural Finance in South Carolina*, South Carolina Agricultural Experiment Station Bull. 282, 1931. (4) V. B. Hart, "Short-Term Borrowing Policies of Farmers," *Journal of Farm Economics*, April 1933, pp. 331-345. (5) Burton D. Seeley, "Financing Crop Production on the Eastern Shore of Virginia," Dept. of Agriculture, 1938 (processed). (6) L. J. Norton, Joseph Ackerman, and C. R. Sayre, *Capacity to Pay and Farm Financing*, Illinois Agricultural Experiment Station Bull. 449, 1938. (7) Estal E. Sparlin, *Farm Credit in Hempstead County*, Arkansas Agricultural Experiment Station Bull. 399, 1940. (8) W. T. Ferrier, *Short-Term Credit for Agricultural Production in South Carolina*, South Carolina Agricultural Experiment Station Bull. 327, 1940, pp. 8 and 9. (9) Harry M. Love, *Financing Truck Crops in Three Eastern Virginia Counties*, Virginia Agricultural Experiment Station Bull. 369, 1945, pp. 11 and 12. (10) Walter H. Pierce, *Credit Practices on Tobacco Farms*, North Carolina State College, Dept. of Agricultural Economics, A. E. Information Series 24, 1950.

federally sponsored agencies, account for as much as 1 per cent of outstanding loans (Table 40).

During the early decades of this century most of the efforts of Congress to improve the sources of non-real-estate credit to farmers were directed toward modification of the commercial banking system. In 1900 the minimum capital requirement of national banks in towns and villages having a population of 3,000 or less was reduced to $25,000 in the hope that the lower capital requirement would lead to the establishment of more banks in rural communities, and hence to a more adequate source of farm loans. In the Federal Reserve Act of 1913, and in the Agricultural Credits Act of 1923, Congress provided rediscount facilities for commercial banks that, it was believed, would encourage them to make loans to farmers on terms that were appropriate to the longer cycle of production of many farm products. However, the legislation of 1923 that provided for the establishment of federal intermediate credit banks had an unexpectedly small influence on the loans of commercial banks. As it turned out, the intermediate credit banks affected non-real-estate loans to farmers mainly through other lenders such as cattle loan companies, agricultural credit corporations, and, later, production credit associations that availed themselves of the discount privilege.

The proportion of non-real-estate loans to farmers held by banks declined very slowly during the 1920's, when the federal government created a series of temporary sources of loans, usually available in highly restricted areas. Not until severe and widespread difficulties beset the banks in the early 1930's was the decline precipitate (Table 40). Sharp as this decline was, it does not reflect the full extent of the exhaustion of banks at that time as a source of loans, for the retardation in loan payments that characterized these years kept the volume of loans outstanding at a higher level than new loans could normally have maintained. Even after the banking system was restored following its collapse in 1933, the relative importance of banks as institutional lenders continued to decline. Not until near the end of World War II was this trend definitely reversed. Then the proportion of institutional non-real-estate loans held by commercial banks rose—from 55 per cent in 1943 and 1944 to 72 per cent in 1950.

The institutional lenders that came to share so largely with banks in the provision of non-real-estate loans to farmers were the federal and the federally sponsored agencies. In 1918 the federal government itself became a direct source of non-real-estate loans to farmers. In that year $5 million of federal money was made available for seed

loans in wheat-growing areas of the Northwest and Southwest, where two successive crop failures had ruined the credit of farmers and made loans from banks impossible. Beginning in 1921 Congress repeatedly met specific disasters of drought, flood, or storm with legislation that provided seed or (after 1931) feed loans to farmers in stricken areas.[13] The areas in which such provision was made gradually expanded, and by 1932 no area limitations were imposed.

At first such loans were made through an agency of the Department of Agriculture known as the Farmers Seed Loan Office—later known as the Emergency Crop Production Loan Office. This federal agency established field offices in the areas where loans were made, and these continued in operation when the activities were transferred in 1934 to the Farm Credit Administration. Late in 1946 the activities of the Seed and Feed Loan Office of the Farm Credit Administration were transferred to the Farmers Home Administration, which subsequently made disaster and other loans in which the risk was too high to be assumed by banks or by production credit associations. From the inception of the emergency crop and feed loans in 1918 to October 1946 some $576 million were loaned to farmers under circumstances too risky and unprofitable to interest the usual sources of non-real-estate credit.[14]

Meanwhile, a series of federal agencies evolved whose purpose was to furnish loans to farmers who could not offer security acceptable to the regular credit institutions. Since 1935 the Resettlement Administration and its successors, the Farm Security Administration and the Farm Home Administration, provided credit to farm families unable to obtain loans elsewhere. So-called "rural rehabilitation" loans, made to enable their recipients to obtain the livestock, equipment, or other capital goods necessary to make the farm operation profitable, were prominent types throughout the period. In addition to these supervised operating loans, long-term loans have been made since 1937 to tenant farmers, share-croppers, and farm laborers unable to get loans elsewhere, to help them buy a family-type farm. These "farm-ownership" loans are now also made to farm owners with low borrowing power to help them develop and enlarge their inadequate farms. This was, however, a late development. Whereas in 1950 as much as 56 per cent of all initial loans were made to small owners to enlarge or

[13] For a digest of the pertinent legislation see Norman J. Wall, "Federal Seed-Loan Financing and Its Relation to Agricultural Rehabilitation and Land Use," Dept of Agriculture, Tech. Bull. 539, pp. 37-44.

[14] *Annual Report of the Farm Credit Administration, 1946-47*, Dept. of Agriculture, 1947, p. 42.

TABLE 40

Percentage of Non-Real-Estate Farm Loans by Institutional Lenders, Held by Banks[a] and by Federal and Federally Sponsored Agencies, by Regions, January 1, 1922-1950

	UNITED STATES		NORTHEASTERN		SOUTHERN		WESTERN		MIDWESTERN	
YEAR	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*
1922	99.9	0.1								
1923	99.9	0.1	100.0		100.0		99.7	0.3	99.9	0.1
1924	99.6	0.4	100.0		99.5	0.5	99.5	0.5	99.7	0.3
1925	99.2	0.8	100.0		98.7	1.3	98.7	1.3	99.5	0.5
1926	99.0	1.0	100.0		98.2	1.8	97.8	2.2	99.4	0.6
1927	98.4	1.6	100.0		97.3	2.7	95.8	4.2	99.3	0.7
1928	98.3	1.7	99.4	0.6	98.1	1.9	94.6	5.4	99.0	1.0
1929	98.0	2.0	99.5	0.5	97.4	2.6	94.5	5.5	99.0	1.0
1930	97.8	2.2	99.5	0.5	96.6	3.4	93.9	6.1	99.0	1.0
1931	94.4	5.6	98.8	1.2	89.2	10.8	88.3	11.7	98.0	2.0
1932	93.1	6.9	99.3	0.7	87.4	12.6	86.3	13.7	97.2	2.8
1933	86.7	13.3	99.1	0.9	78.9	21.1	75.9	24.1	93.6	6.4
1934	75.5	24.5	94.3	5.7	75.6	24.4	59.8	40.2	79.2	20.8
1935	65.1	34.9	88.4	11.6	54.8	45.2	53.2	46.8	70.9	29.1
1936	62.7	37.3	81.2	18.8	66.6	33.4	54.4	45.6	61.1	38.9
1937	56.0	44.0	72.6	27.4	49.4	50.6	56.2	43.8	57.4	42.6
1938	56.2	43.8	69.9	30.1	33.2	66.8	58.5	41.5	62.3	37.7
1939	57.5	42.5	71.6	28.4	30.7	69.3	59.5	40.5	64.2	35.8

(continued on next page)

TABLE 40 (continued)

YEAR	UNITED STATES		NORTHEASTERN		SOUTHERN		WESTERN		MIDWESTERN	
	Banks	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*	*Banks*	*Federal and Federally Sponsored Agencies*
1940	58.1	41.9	68.9	31.1	42.5	57.5	60.0	40.0	63.6	36.4
1941	58.2	41.8	66.7	33.3	44.4	55.6	58.8	41.2	64.1	35.9
1942	59.9	40.1	65.3	34.7	54.6	45.4	59.0	41.0	63.5	36.5
1943	54.6	45.4	55.8	44.2	44.4	55.6	55.4	44.6	61.0	39.0
1944	54.8	45.2	52.7	47.3	45.8	54.2	57.7	42.3	60.1	39.9
1945	57.7	42.3	52.7	47.3	48.3	51.7	60.6	39.4	63.6	36.4
1946	61.3	38.7	56.7	43.3	52.4	47.6	67.2	32.8	65.7	34.3
1947	65.3	34.7	60.8	39.2	56.6	43.4	71.3	28.7	69.7	30.3
1948	68.8	31.2	64.4	35.6	59.5	40.5	73.3	26.7	73.8	26.2
1949	71.1	28.9	66.5	33.5	61.2	38.8	73.6	26.4	77.0	23.0
1950	71.6	28.4	67.0	33.0	62.0	38.0	71.8	28.2	78.3	21.7

[a] All state and national banks prior to 1935; insured commercial banks 1935 and thereafter. From 1900 to 1922 federal agencies held less than 0.05 per cent of loans in regions.

Source: Bureau of Agricultural Economics.

develop their farms, in 1947 only 9 per cent were for this purpose.[15]

Rural rehabilitation loans (production and subsistence loans, as they came to be called after 1946) and farm-ownership loans are by all odds the most important types that were made by the Farmers Home Administration and its predecessors. Water-facility loans were comparatively unimportant, and only a very few loans for the construction or repair of farm houses and service buildings were made before January 1, 1950. All of these loans were noncompetitive; that is, they were made only to farmers who for one reason or another were unable to borrow through ordinary channels.

In 1932 the federal government undertook to provide facilities for making non-real-estate loans on a countrywide scale to credit-worthy farmers as well as to those whose security and prospects did not permit them to borrow through ordinary channels. Such comprehensive action was made necessary by the near-collapse of the banking system in rural areas. Between January 1, 1930 and July 1, 1932 nearly 4,500 banks had closed—a large proportion in rural areas. Many of the banks that remained open were under the stern necessity of curtailing loans because of the severe shrinkage in deposits that accompanied the depression. In order to supplement the now utterly inadequate credit facilities of rural commercial banks Congress authorized the Reconstruction Finance Corporation to create a regional agricultural credit corporation with a paid-up capital of not less than $3 million in any of the twelve federal land bank districts when it deemed it desirable to do so.

The RFC promptly organized such a corporation in each of the twelve land bank districts, placing it under the supervision of an RFC-appointed manager. In the two and a quarter years (October 1932-December 1934) in which the agricultural credit corporations made loans, their net disbursements (disbursements less renewals) amounted to nearly $285 million. Organized to meet a specific emergency, the agricultural credit corporations suspended their lending operations at the end of 1934 just as the production credit system created by the Farm Credit Act of 1933 became available to farmers.[16]

The production credit system was designed to be a permanent cooperative system which would supply short and intermediate non-real-estate loans to farmers with good credit. Fundamental to the system are the production credit associations. These are local coopera-

[15] *Report of the Administrator of the Farmers Home Administration*, 1950, p. 13.

[16] During World War II the agricultural credit corporations temporarily became active lenders.

tive organizations that make direct loans to farmers. They are chartered by the Governor of the Farm Credit Administration, and they operate under rules and regulations approved by him but prescribed by production credit corporations. Such a corporation is located in each city in which there is a federal land bank.

The original capital of the production credit associations was almost entirely supplied by the production credit corporations, which in turn received their capital funds through sale of their stock to the federal government. However, by June 30, 1950 member-owned stock and accumulated earnings amounted to $128,320,142, or 87.7 per cent of the net worth of the 502 associations then in operation. At that time farmer-members owned completely 134 associations.[17]

The chief source of loan funds for the production credit associations is the federal intermediate credit banks. Production credit associations were authorized by the Farm Credit Act of 1933 to borrow from, and discount paper with, the federal intermediate credit banks of their respective districts. These banks in turn were authorized to issue debentures secured by notes received from production credit associations or by other specified assets, and to sell them in the major capital markets of the country. Thus a bridge was built from the individual farmer in need of a short or intermediate-term loan to the central money markets of the country, which gave farmers with good credit access to loan funds where they were most plentiful. The growth and relative importance of the production credit associations as lenders of non-real-estate credit may be observed in Chart 17.

Regional Differences in Internal and External Financing

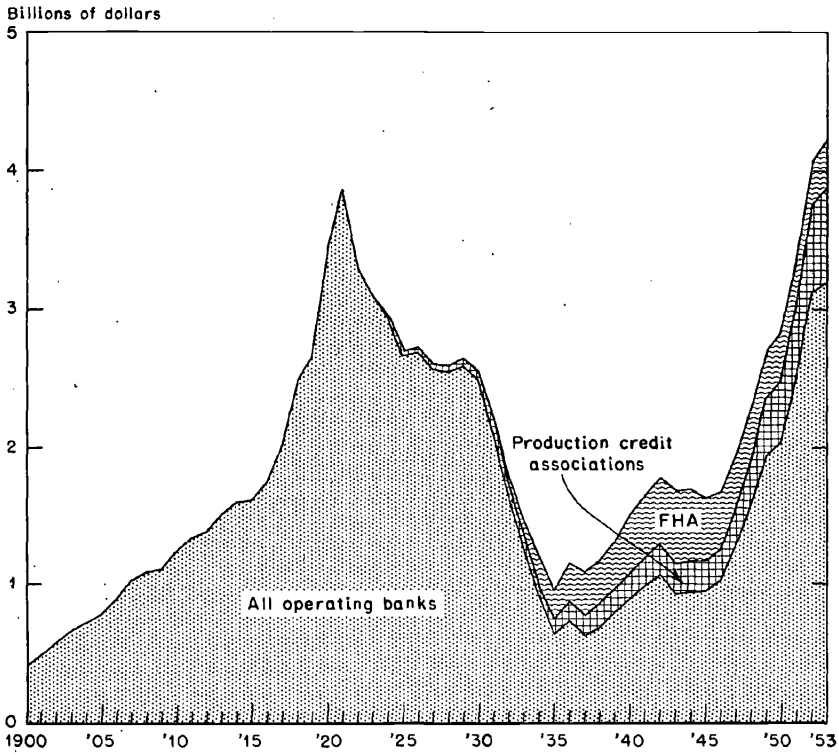
Regional differences in the extent to which creditors assist in financing farm capital are basically determined by (1) need for external funds to establish, equip, and operate farms of types that are customary in the region, and (2) availability of potential lenders willing to loan on the security and prospects offered by farmers of the region.

Demand for external capital is likely to be relatively large in regions where the prevalent type of agriculture requires a large investment. For example, livestock enterprises usually call for larger investments than cash-crop enterprises. Moreover, among cash crops for which economies of scale are important, as in grain farming in the Great Plains, need for externally supplied capital will be greater than in

[17] *Annual Report of the Farm Credit Administration, 1949-50*, 1950, pp. 5-6.

CHART 17

Non-Real-Estate Farm Loans Held by Banks and by Federal and Federally Sponsored Agencies, United States, 1900-1953



Source: Bureau of Agricultural Economics, Division of Agricultural Finance.

January 1 data; excluding loans held or guaranteed by Commodity Credit Corporation. FHA holdings include Emergency Crop and Feed and Regional Agricultural Credit Corporation loans. With PCA holdings are included Federal Intermediate Credit Bank discounts for other lenders; data for 1900-09 are from Raymond W. Goldsmith Associates, Inc.

the production of cotton, an enterprise which at least until recently could be carried on about as well on a small as on a large scale. Even now in many cotton-growing areas production of cotton can hardly be altered in a way that would require heavy investment.

Regional differences in creditor participation in financing farm capital may also arise out of conditions that influence the supply of loan funds. Differences in the local accumulation of capital are important, and lenders may prefer one region to another as a field for investment.

Regional data are insufficient to show in the same manner as for the United States the extent to which farm capital was provided from internal and external sources. However, by dividing for each region the total mortgage debt outstanding plus the institutional non-real-estate debt by the value of physical farm assets in current prices, percentages are obtained that reflect regional differences in importance of the creditors' participation in financing farm capital (Table 41).

TABLE 41

Percentage Relation of Total Farm Debt[a] to Value of Physical Assets in Current Prices, by Regions, Decennial Census Years, 1910-1950

Region	*1910*	*1920*	*1930*	*1940*	*1950*
United States	10.5	14.2	20.1	18.3	7.8
Northeast	10.2	11.6	16.1	16.1	9.6
Appalachian	7.1	9.5	14.7	11.7	6.3
Southeast	8.1	10.7	18.6	15.7	7.7
Lake States	13.8	17.4	22.1	20.8	9.0
Corn Belt	11.2	13.4	22.4	18.2	7.1
Delta States	7.4	13.0	17.3	16.5	7.9
Great Plains	10.6	16.1	20.8	24.3	6.5
Texas-Oklahoma	11.2	15.6	20.5	17.4	7.7
Mountain	9.7	19.1	21.4	20.9	8.9
Pacific	9.5	14.5	19.5	19.5	9.4

[a] Excludes CCC loans and debt owed merchants and dealers.

Source: Computed from estimates of total farm debt by the Bureau of Agricultural Economics, and data on physical assets in Table 7.

Although these percentages do not reflect credit obtained from merchants and dealers, and hence provide a less accurate picture than was obtained for the United States, they do, nevertheless, depict regional differences in the sources of agricultural capital that are real and substantial. Unfortunately, existing data do not permit this calculation to be made for years before 1910.

Table 42 shows the rank of the regions in respect to the relation of debt to value of physical assets shown in Table 41, ranking the region with the highest ratio of debt to value as number 1. The ranks of each region in the respective years are combined in an "average" rank for the period. The final column indicates that taking the period 1910-50 as a whole the ratio of debt to value was highest—hence creditor participation in financing agricultural assets was highest—in the Lake States and lowest in the Appalachian region. Associated with the Lake States on the high side were the Mountain, Great Plains, and Corn Belt regions, and on the low side along with the

TABLE 42

Rank of Regions with Respect to Ratio of Total Farm Debt[a] to Value of Physical Assets, Decennial Census Years, 1910-1950, and for the Whole Period

Region	*1910*	*1920*	*1930*	*1940*	*1950*	*1910-50*
Northeast	5	8	9	8	1	7
Appalachian	10	10	10	10	10	10
Southeast	8	9	7	9	6.5	9
Lake States	1	2	2	3	3	1
Corn Belt	2.5	6	1	5	8	4
Delta States	9	7	8	7	5	8
Great Plains	4	3	4	1	9	3
Texas-Oklahoma	2.5	4	5	6	6.5	5.5
Mountain	6	1	3	2	4	2
Pacific	7	5	6	4	2	5.5

[a] Excludes CCC loans and debt owed to merchants and dealers.
Note: Number 1 represents the highest ratio of debt to physical assets.
Source: Table 41.

Appalachian are the Southeast, Delta, and Northeast regions. Texas-Oklahoma and the Pacific regions were in the intermediate positions.

Comparison of the regions in which creditor participation was relatively high with those in which it was relatively low suggests that the following characteristics of regions may be associated with these two groups. First, the areas in which creditor participation is high are, in general, newer areas. The Corn Belt does not qualify as a new area and it seems likely that "age" was the factor more than any other that placed it fourth from the top in the matter of creditor participation. Second, livestock enterprises are very prominent in the first group, whereas in the second group they are unimportant except for the Northeast. The Northeast, it should be observed, has the highest creditor participation in this low group. Third, investment per farm and per person engaged in farming is notably high in the first and low in the second group. Fourth, income per farm and per person engaged in farming is high in the first and low in the second group. These four characteristics are not entirely independent. For example, livestock enterprises contribute to high investment per farm and per person, although the latter are possible where cash crops are produced.

Regional Differences in Sources of External Funds

The dependence of farmers on local sources of loan funds in the early years of this century varied considerably by regions (Appendix

I). For example, in the ten years 1910-19, the chief nonlocal lenders of those early years—the insurance companies—recorded on average 17 per cent of the total amount of farm mortgage loans made in the Corn Belt and less than one-half of 1 per cent of the total in the Northeast. A somewhat similar difference probably existed in the preceding decade, but data are not available to substantiate this.

Mortgage companies, included in miscellaneous lenders in statistics on mortgage recordings, also operated in a manner that brought considerable amounts of loan funds from sources beyond the local community in which they were placed. Mortgage companies were fairly prominent lenders in the Texas-Oklahoma, Mountain, and Pacific regions, but elsewhere they did not account for much of the lending.

Provisions by the Federal Farm Loan Act of 1916 for the establishment of the federal land bank system and for the organization of joint-stock land banks made possible important new facilities for bringing funds from nonlocal sources to farm borrowers. It is interesting to observe that in the early years of operation the federal land banks were most active as lenders in the regions that insurance companies had largely avoided, notably the Northeast and the southern regions. Moreover, the joint-stock land banks, in the brief period of their prominence (during the middle 1920's), also tended to be most active in areas in which the insurance companies did not make a substantial portion of the loans. This coincidence was notable in some of the states in the Northeast, Appalachian, Southeast and other regions.[18]

When in the early 1930's the depression virtually paralyzed private sources of credit, the federal land banks and the Land Bank Commissioner became briefly the most prominent source of mortgage credit. In order to strengthen the federal land bank system to combat the farm mortgage crisis, Congress, through the Emergency Farm Mortgage Act of 1933, enlarged the lending power of the federal land banks and authorized the Land Bank Commissioner to make loans under liberal conditions. The proportion of federal land bank and Land Bank Commissioner loans among mortgage recordings was especially large in the Lake States and Great Plains; it was low in the Northeast and Delta regions. Since by far the greatest part of land bank and Land Bank Commissioner loan volume went to refinance debt, it may be assumed that the loan distribution in these years

[18] Illinois, in the Corn Belt, is a possible exception to this rule. Insurance companies and joint-stock land banks both were prominent lenders in this state.

reflects the relative need of farm mortgagors for special consideration in the depression.

In the pattern that developed after the emergency of the 1930's subsided, local sources everywhere provided a smaller proportion of mortgage funds than before 1920; individuals provided a smaller proportion than in the 1920's, but banks provided more.

Insurance companies during the 1940's regained the prominence they had enjoyed in the 1920's (and before) as providers of mortgage credit in the Corn Belt, Great Plains, and Lake States. They continued their role of minor lenders in the Appalachian, Southeast, and Northeast regions, although in the Northeast the insurance companies appear to be rapidly increasing their very small proportion. In the Delta and Mountain States the proportion of mortgage loans recorded by insurance companies was strikingly higher throughout the 1940's than in earlier decades; it was somewhat higher also in Texas-Oklahoma and the Pacific States.

After the emergency of the early 1930's federal land banks receded in prominence, but the relative importance of these banks continued to be higher than before, except possibly in the Appalachian and Lake States. In most cases the decline in prominence of federal land banks was accompanied by the increasing importance of insurance companies or commercial banks. However, in some regions, notably the Appalachian and Southeast, the rising volume of loans made by the Farmers Home Administration and its predecessors was an important factor in the reduction of the proportion made by federal land banks.

REGIONAL DIFFERENCES IN THE SOURCE OF NON-REAL-ESTATE CREDIT

That there are substantial regional differences in the proportion of non-real-estate credit provided by noninstitutional lenders is generally agreed upon, but the differences cannot be measured with existing data. Hence in what follows comment will be limited to regional distribution of institutionally held non-real-estate debt.

Commercial banks were virtually the sole source of non-real-estate loans in all regions in the first two decades of this century; not until 1925 did loans by federal and federally sponsored agencies amount to as much as 1 per cent in any region. Moreover, growth in the proportion of loans held by these agencies was slow during the second half of the 1920's. Then, as banking difficulties mounted in the early 1930's, growth of their holdings accelerated rapidly, and continued even after the rehabilitation of the banking system. In 1935 in the

West and South loans held by the federal and federally sponsored agencies amounted to approximately one-half of the total held by institutions. In the Midwest and Northeast they held a substantially smaller proportion (Table 40).[19]

In the marked growth in non-real-estate loans that took place in the late 1930's and early 1940's the proportions held by the banks and the federal or federally sponsored sources changed little. But near the end of the war the banks drew decisively ahead as suppliers of non-real-estate loans to farmers. Yet in 1950 in the southern regions 38 per cent of such loans held by institutional lenders were in the portfolios of federal or federally sponsored agencies, in the Northeast 33 per cent, in the western region 28 per cent, and in the midwestern area 22 per cent.

[19] Not all of the data involved can be classified readily by the ten regions that are ordinarily distinguished in this study, hence the division of the country into four regions. The Northeast is identical in both groupings; the midwestern region comprises the Corn Belt, Great Plains, and Lake States; the southern region comprises the Southeast, Appalachian, Delta, and Texas-Oklahoma regions; the western region comprises the Mountain and Pacific regions.